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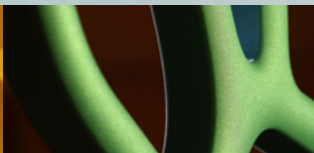
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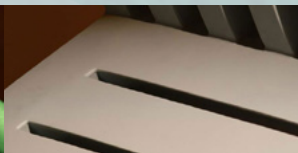
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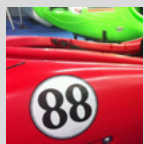


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# Introduction

## Outdoor décor

■ Rotational moulding is an important point of reference for all those sectors that interact with outdoor spaces, from gardening to street furniture, from outdoor furniture to the décor of public areas.

Rotomoulded products are ideal for decorating outdoor spaces since they resist to bad weather and rapid temperature changes while dramatically reducing maintenance compared to more traditional materials such as terracotta or wood. Thanks to the possibility of manufacturing products in a wide range of sizes both compact and monumental items can be developed to turn into reality whatever ideas you have of urban space design.





## GT Line

### Professional Carrying

■ Founded in 1970 in Bologna, GT Line has been designing and producing a wide range of technician tool cases and tool boxes unique in the world for more than 45 years: GT Line-branded tool cases are very well known all over the world and are considered as the most reliable professional tool storage containers.

Relying on three manufacturing plants strategically located in the world, and thanks to its ample range of products, GT Line is able to solve any problem of carriage of professional equipment either for humanitarian missions, technical engineers working on oil platforms or excursionists in the Himalayas.

All production and assembly processes are highly automated in order to guarantee the highest levels of reliability, resistance and consistent quality.

Link: [www.gtline.com](http://www.gtline.com)



## Repi

### Colours Explorers

■ Repi was founded in 1973 as a result of the insight and inspiration of the founder and his family whose desire has always been to develop and produce liquid colours and additives for plastic materials.

Research, experimentation and dedication together with a future-oriented vision have allowed Repi to become one of the leading companies in the industry. Having its headquarters in Italy, Repi is presently operating at an international level thanks to its branch offices in the USA, United Kingdom and Russia. It can also rely on a widespread global network of local partners managing customer enquiries from the five continents.

The points of strength of Repi are not only the offer of a wide range of products, able to meet the requirements of diverse fields of application, but also its R&D activities, the assistance and the technical support provided to customers and its experienced technical and laboratory team.

Link: [www.repi.com](http://www.repi.com)





# Powderex

## Powders and Pulverizing Processes

■ Powderex belongs to Arcoplex Group and is specialised in plastic pulverizing. The aim of the pulverization of plastic is to adapt particle size distribution and grain structure to the specific requirements of rotational moulding, carpet backside coating and masterbatch production. Supply of raw materials, a strategic variable for this type of processing, makes use of the competitive purchasing platform of the Arcoplex Group. The use of prime polymers allows continuous high-quality manufacturing processes duly monitored before, during and after production thanks to a well-equipped in-house laboratory. The historical data of each material are recorded and stored in the Powderex production system enabling production repeatability and guaranteeing constant quality over time.

Link: [www.powderex.eu](http://www.powderex.eu)



# Rotoline

## Products

■ Rotoline is able to mould different kinds of products: for the marine and petrochemical industries, for interior decoration or street furniture and for sectors such as building, ecology and cleaning or toys, containers and tanks for use in agriculture or for storing waste water.

Our products can also be customised and made more attractive by means of permanent decorations and labels. Moreover, thanks to a high-quality system, it is possible to perform different types of welding procedures. Rotoline can rely on a wide range of fill materials and welding tip geometries, but can also develop tailor-made configurations and tips so as to ensure excellent results in terms of technical properties and product appearance.

We need only cast aluminium moulds or steel sheet moulds to turn all your ideas into reality.

Link: [www.rotoline.it](http://www.rotoline.it)





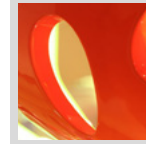
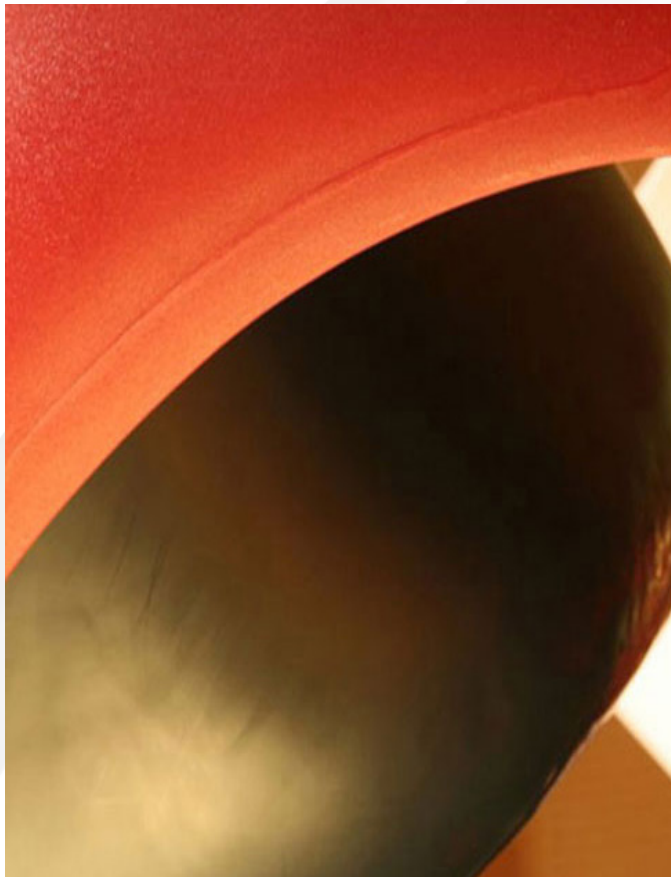


## Education

### Parting Lines

■ When producing parts using rotational moulding, two or more elements are needed. Higher or lower mould complexity is directly linked to the presence/absence of undercuts or formally complex areas preventing the mould from being divided into just two shells. During the rotomoulding process, the temperature of the air inside the mould rises leading to an increase in air volume. In order to prevent the pressure inside the mould from rising, the increased air volume inside the mould has to find its way out. Therefore, it is necessary to design a vent into the mould. Venting is important not only in the warming-up phase but also in the cooling-down phase as venting allows air to enter the mould. Good mould design can prevent many defects from occurring.

Link: [www.rotodesign.it](http://www.rotodesign.it)

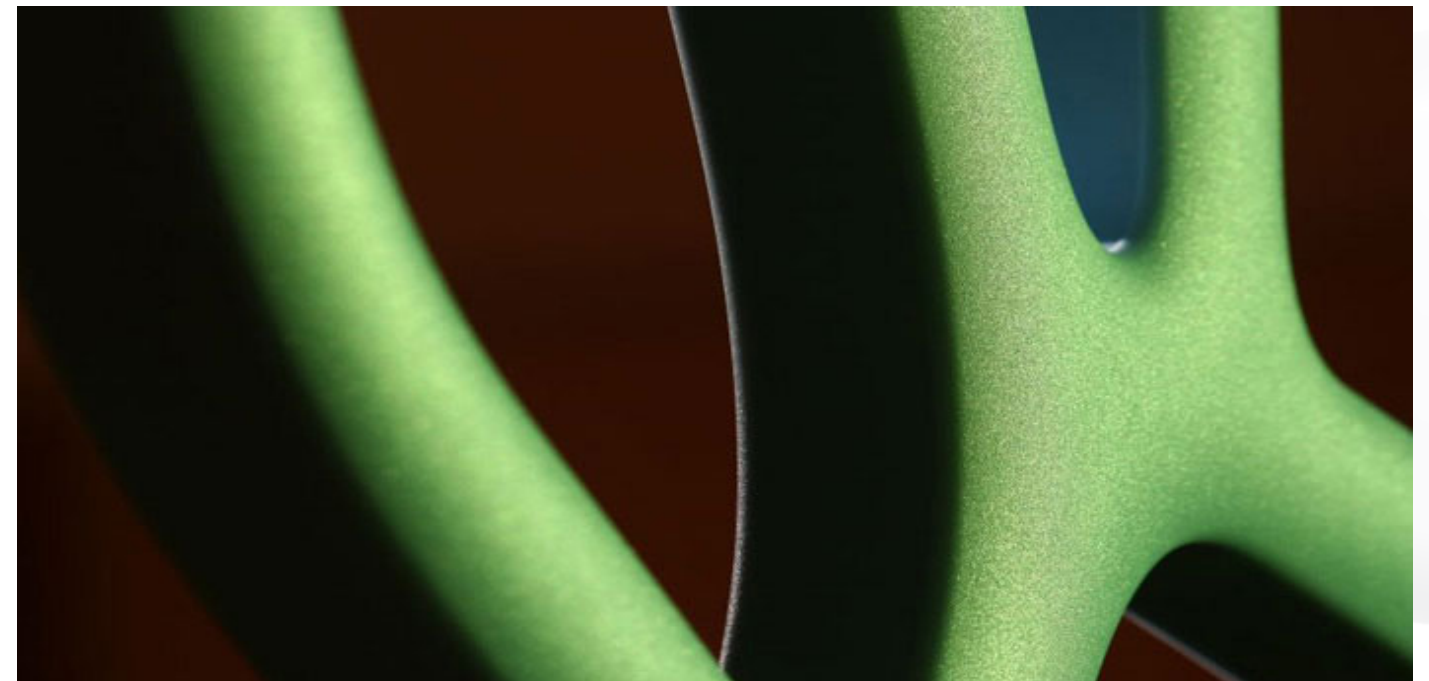


## Education

### Radii and Angles

■ Since sharp edges may increase the formation of surface bubbles, it is better to avoid any kind of edges. Corner radii less than twice the wall thickness may be critical if the angle is lower than 30°. The minimum recommended angle varies according to the material used in the rotomoulding process: 30° for polyethylene and PVC, 20° for nylon and 45° for polycarbonate. Angles lower than the ones mentioned above may jeopardize product quality, surface evenness and cause structural rupture.

Link: [www.rotodesign.it](http://www.rotodesign.it)





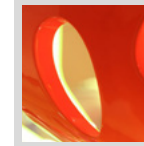


## Education

### Planarity and Shrinkage

■ It may be difficult to guarantee absolute planarity when relatively large panels are rotomoulded. One of the most common planarity defects is the so-called warpage, which is a huge concave or convex deformation of the part walls. Since warpage is normally increased by sharp edges or very small corner radii, this deformation problem can be solved by increasing corner radii. A particular type of surface deformation is the so-called void, that is a small localized depression. Voids occur in the areas where material piles up and are caused by shrinkage during the solidification process.

Link: [www.rotodesign.it](http://www.rotodesign.it)



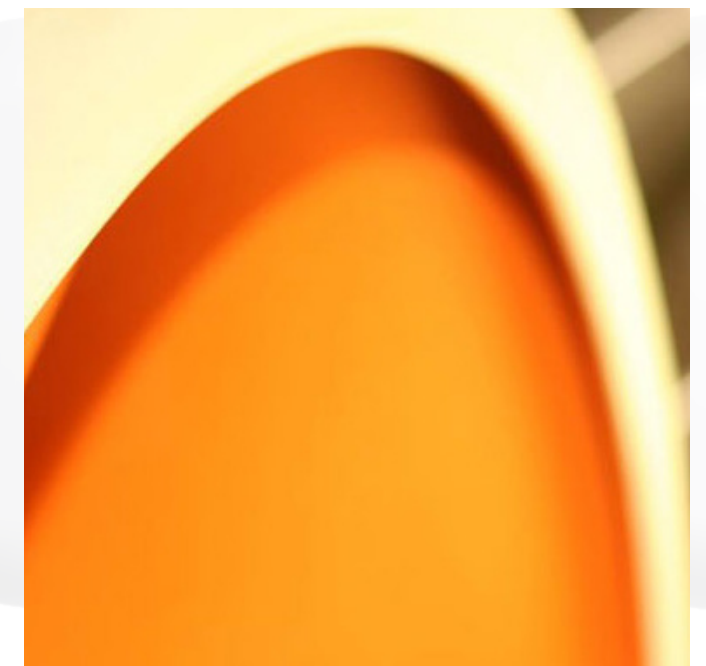
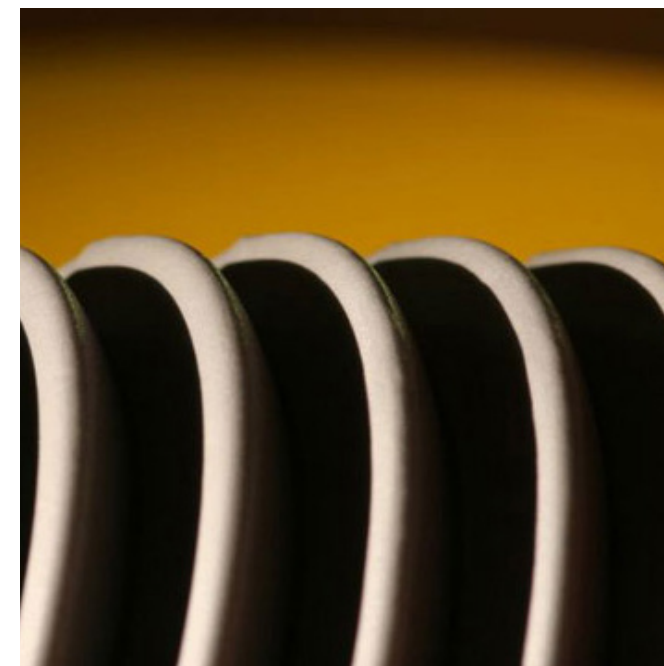
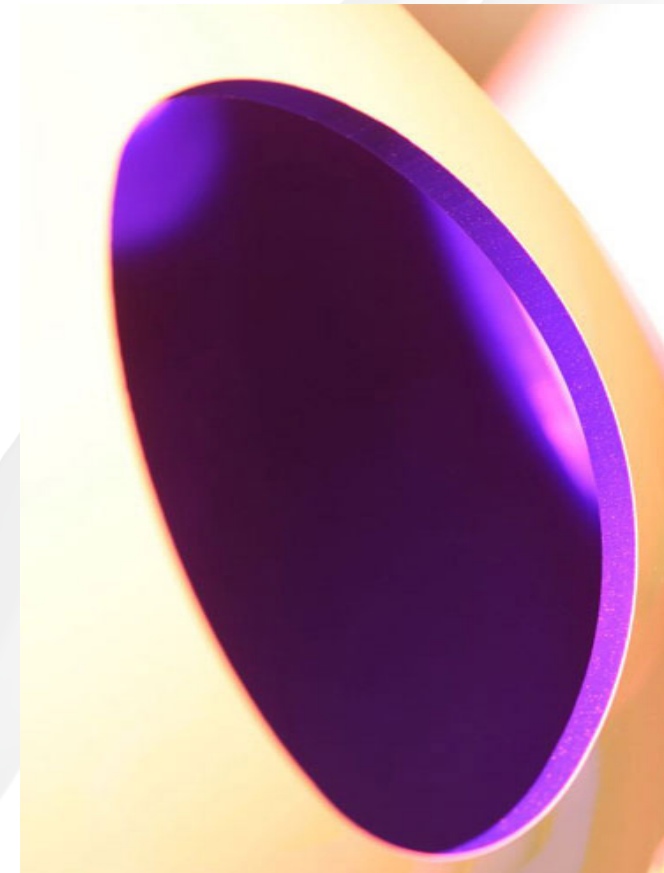
## Education

### Double Walls

■ Hollow items can be manufactured using rotational moulding but this does not mean that a 'hollow item' is an object whose only visible part is what can be seen from the outside. It is therefore possible to mould "hollow items" with two walls very close to each other. Both the internal and the external parts are then visible and require custom finishing.

It is possible to produce moulds enabling double-wall moulding by designing the mould with its cover acting as a "male mould" that defines the internal part. And in order to give the powder enough space to flow inside the mould, it is necessary to design the two walls so as the internal clearance is always at least 5 times the wall thickness.

Link: [www.rotodesign.it](http://www.rotodesign.it)



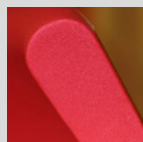


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